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### Strawberries

Cooperative Extension South Dakota State University

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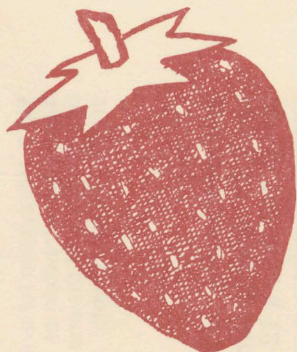
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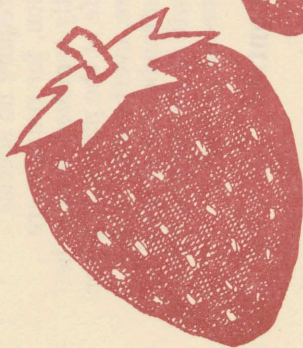
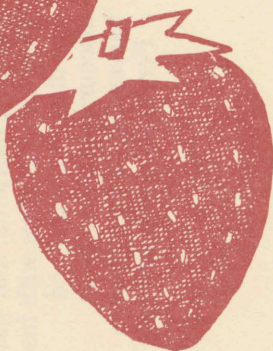
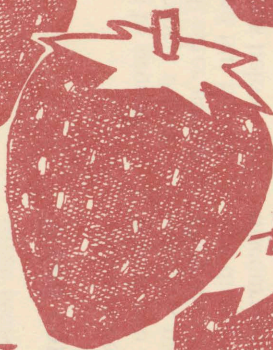
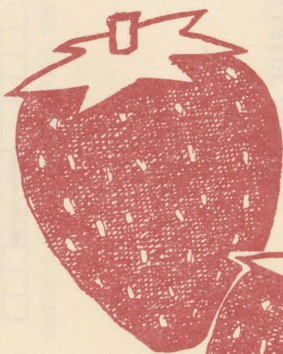
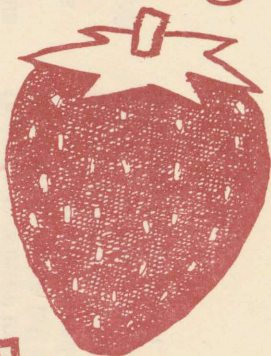
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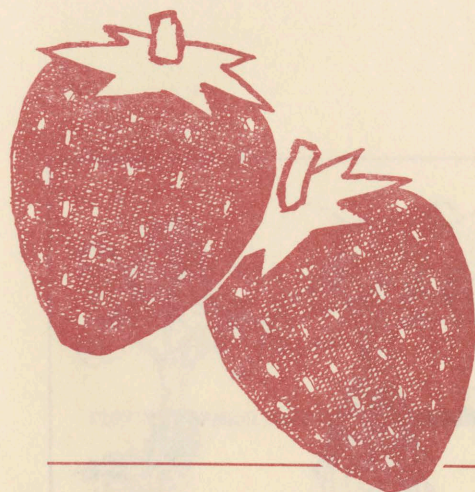
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# *Strawberries*



Cooperative Extension Service  
South Dakota State University  
U.S. Department of Agriculture





# Strawberries

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Strawberries are often called "South Dakota's citrus crop." They are a good home-grown source of Vitamin C and can be raised in most parts of the state.

Junebearing strawberries grown in a matted row should produce up to a pound of berries per foot of row. Everbearing plants in a well-cared-for hill system can produce up to ½ lb of berries per plant. A quart of strawberries weighs 1¼ to 1½ lb.

## Types of strawberries

Both Junebearing and everbearing strawberries are grown in South Dakota. Junebearing strawberries produce their entire crop in June and early July. Everbearing strawberries produce from June until freezing in the fall but tend to have peaks in June and August-September.

A new type, the day neutral strawberry, has been receiving attention recently. Day neutral strawberries are similar to everbearings but tend to spread their production more evenly over the harvest season.

## Site

Strawberries give a high yield for the space they occupy, so plant them on your best available site. Strawberries can adapt to many soils and climatic conditions, but they perform best on soil that is light and easily worked, holds moisture, has medium fertility, and is high in organic matter. The soil should have good internal drainage and good surface drainage.

Sites with highly saline (salty)

soils should be avoided. Low sites are subject to late spring frosts. Strawberries prefer a site that is fully exposed to the sun.

Summer fallow the planting site or grow a cultivated crop on it the year before planting strawberries. Do not plant on a site that was in sod or was weedy the year prior to planting. Sod or weedy ground can harbor harmful soil insects such as white grubs that may destroy a strawberry planting.

## Irrigation

Strawberries should never lack moisture if you expect high yields. They can use up to 1½ inches of moisture per week during the growing season.

In South Dakota, this means you must add water, since rainfall usually does not supply adequate moisture through the entire growing season. Either trickle or sprinkle irrigation can be used, but sprinkle irrigation has an advantage since it can also be used for frost protection.

Irrigation should be continued throughout the growing season to ensure good production the following year.

Strawberries cannot tolerate highly saline irrigation water; yields are seriously reduced when such water is used. Irrigation water can be tested for salinity by the SDSU Water Quality Testing Laboratory, Room 204, Agricultural Engineering Building, SDSU, Brookings, SD 57007. Contact the lab or your county Extension Service office for water sample collecting and testing information.

## Suggested cultivars

The success of strawberry production often depends on the cultivar used. Contact your Cooperative Extension Service for the most recent cultivar recommendations.

*Sparkle* is widely planted and is excellent for fresh use and freezing. *Redcoat*, *Honeoye*, *Scott*, and *Kent* are other Junebearing cultivars that should be considered.

*Fort Laramie* and *Ogallala* are well adapted and the most planted everbearing strawberries in South Dakota.

*Tristar*, *Hecker*, *Fern*, and *Tribute* are new day neutral cultivars worthy of trial.

Order plants early to be sure of getting the cultivars you want. Dependable nurseries will supply high quality, virus free plants. Ask your nursery to ship plants to arrive about April 15 to May 1, depending on your location. Keep the plants in your refrigerator until planting time.

## Which type to plant?

Commercial growers nearly always plant Junebearing strawberries, for they produce larger yields and frequently are superior to everbearing or day neutral strawberries in berry size and quality.

If you want fruit during the first growing season and then in June, late summer, and fall in following years, you may choose to plant everbearing or day neutral strawberries. Some new day neutral cultivars appear promising for their yield and quality of fruit, but they need



further evaluation under our South Dakota conditions.

## Planting strawberries

Set strawberry plants in the field or garden as soon as planting conditions are favorable in your area. Planting depth is important. The crown of the plant must be placed at the soil line. Setting plants too high will expose roots to drying; setting plants too deep will reduce their vigor. The soil should be firmed around the roots following planting (Fig 1).

## Care of Junebearing strawberries

Junebearing strawberries are usually grown in a matted row. Set plants 18 to 30 inches apart in rows 3 to 4 feet apart (Fig 2).

Each plant will produce several runner plants, forming a matted row. The matted row should be restricted to a 12- to 15-inch width for maximum production. Spacing of runner plants within the matted row will vary, depending on the vigor of the cultivar. Three to four plants per linear foot of row would be desirable in most cases. Remove surplus runners.

The earliest established runner plants are more productive than later ones. Hand set a runner by placing the tip in contact with the soil. This encourages early rooting. Irrigate immediately after hand setting the runners.

Remove all blossoms that are produced the first year. Failure to do this will greatly reduce yields the following year. Junebearing cultivars produce their first and best crop in the second growing season. A planting is generally retained for 2 or 3 producing years.

## Care of everbearing and day neutral strawberries

Everbearing and day neutral strawberries are usually grown in a hill system but may be grown in matted rows. These strawberries

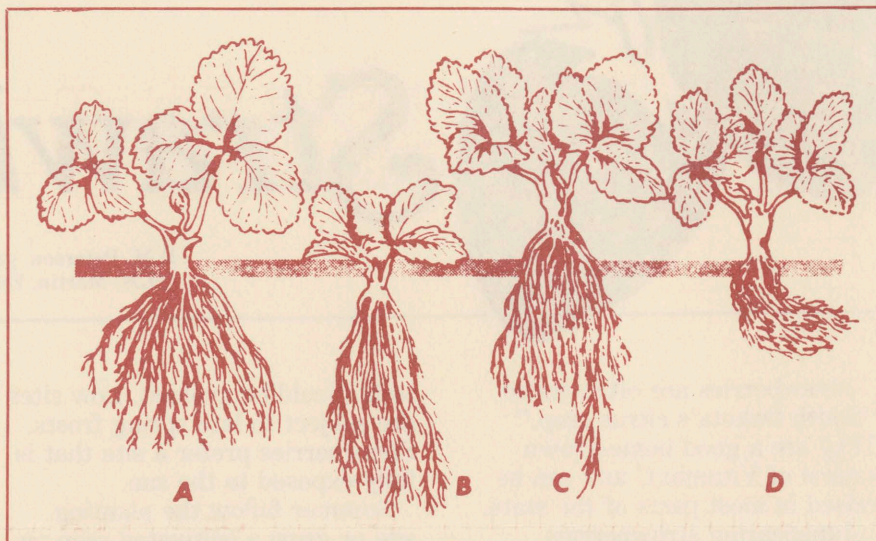


Fig 1. Correct planting (A) and improper planting (B,C,D). In (A) the crown of the plant is level with the soil and the roots are well spread and straight. In (B) the crown is below the soil and plant

growth will be weak. In (C) the crown is too high, exposing the root system. In (D) the roots have been bent and remain near the surface of the soil.

produce their first and best crop in late summer and early fall of the year in which they are planted.

The most desirable hill system consists of beds containing three rows 12 to 15 inches apart with plants spaced 12 to 15 inches apart within the rows. Leave 24 to 30 inches between the three-row beds (Fig 3).

When growing strawberries in the hill system, remove all runners throughout the life of the planting. This will allow each original plant to develop many crowns and produce a good yield.

During the first summer, remove all blossoms that develop before July 1. Blossoms developing after July 1 will produce berries which will be harvested from late July until hard frost. Leave all blossoms in following years so plants will produce a crop in June in addition to the fall crop.

About June 15 each year, mulch the planting with 2 to 3 inches of ground corn cobs, sawdust, or grass clippings. This summer mulch enhances yields by keeping the soil cool, conserving moisture, and controlling weeds. It also helps keep the fruit clean.

A sawdust or corn cob mulch will require additional nitrogen fertilizer. Ammonium nitrate (34-0-0) at the rate of  $\frac{1}{2}$  lb per 5 bushels of mulch should be mixed in thoroughly with the mulch.

## Fertilizer

A pre-planting broadcast application of 250 to 400 lb of 10-20-20 analysis fertilizer per acre is usually advisable. (This is equivalent to a rate of 6 to 10 lb per 1,000 square feet.)

Have your soil tested prior to planting your strawberries. Contact your local SDSU Extension Service office for soil testing information.

In a new strawberry planting, it is generally a good practice to apply an additional 50 to 75 lb of a 34-0-0 analysis fertilizer per acre when the runners are starting to form. (This is equivalent to 1 lb per 100 feet of row.) Make a second application at the same rate in early August. **Do not apply more than the recommended amount of fertilizer.**

In the second and following years, apply fertilizer only once each year. For both Junebearing



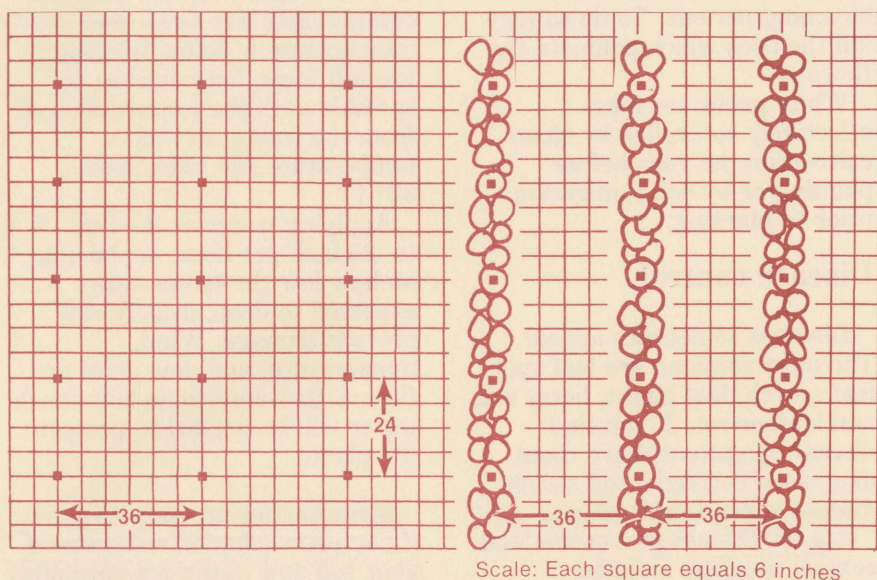


Fig 2. Matted row systems for Junebearing strawberries at planting time (left) and at the end of the first growing season (right). Dots indicate original plants.

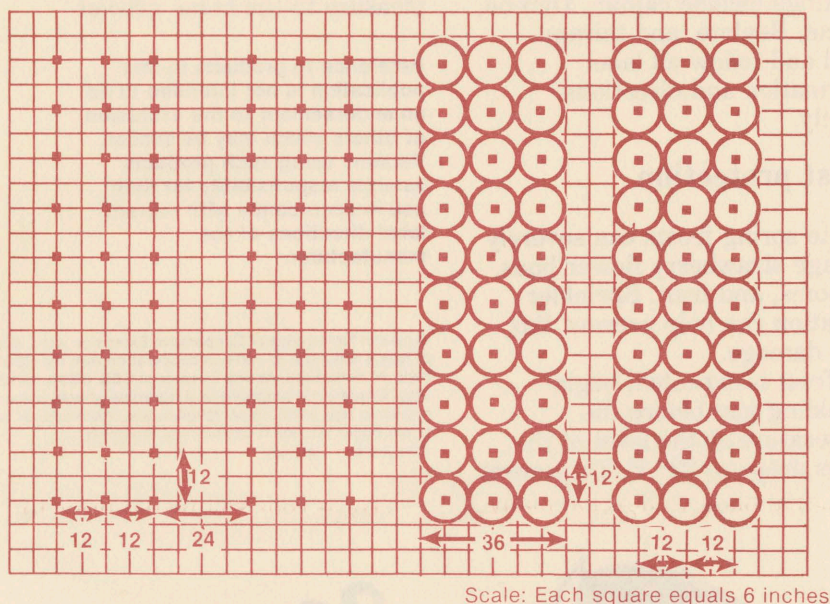


Fig 3. Hill system for everbearing and day neutral strawberries at planting time (left) and at the end of the first growing season (right).

and everbearing strawberries, apply fertilizer in early July. Use 300 to 400 lb of a 12-12-12 analysis fertilizer per acre. (This is equivalent to 5 to 6½ lb per 100 feet of row.) Most growers avoid applying fertilizer in the spring, for it often results in soft berries and may reduce yield.

### Winter mulch

Mulch your plants to protect them from winter injury. Apply the mulch in late fall after several freezes have occurred but before the temperature drops below 15° F. Usually this occurs between November 1 and 15. Do

not mulch too early. Two to 3 inches of mulch will give adequate protection.

Sudangrass makes a good winter mulching material and is often grown by strawberry producers just for this purpose. Harvest it for mulch before the seeds mature.

Wheat straw makes a good mulch, but seed remaining in the straw may become a serious weed problem. Marsh hay and cornstalks (preferably slightly shredded) are also used as winter mulch.

Remove mulch from the strawberries in late spring before the leaves start turning yellow. It is important to leave some mulch on the ground within the row to keep the fruit clean. Put the remaining mulch in the picking aisles. This permits berry pickers to harvest fruit immediately after a rain.

### Renovation

Junebearing strawberries grown in the matted row system generally are kept for two or three cropping seasons. Each year, renovate immediately after harvest.

Mow the plants off and remove the clippings. Then narrow the rows to a width of 8 to 10 inches, using a rotovator, hoe, or other convenient implement. Fertilize and irrigate the planting immediately after renovation.

Everbearing and day neutral strawberries grown in the hill system require no special renovation, for runners are constantly removed during the entire life of the planting. Given good care, everbearing or day neutral strawberries in a hill system will be productive for three seasons or more.

### Weed control

Good weed control is essential. Weeds rob strawberry plants of sunlight, nutrients, and water. They also interfere with insect and disease control and discourage pickers from harvesting all ripe fruits.

Perennial weeds are very



difficult to control after the strawberries are planted, so eliminate them prior to planting. Weeds or sod may harbor soil insects such as white grubs that can readily destroy a strawberry planting.

Hand weeding is adequate in small plantings, but power equipment and herbicides are generally considered essential in commercial plantings. Common herbicides include Dacthal, Devrinol, Enide, Sinbar, and Tenoran. Check with proper authorities for current weed control recommendations, and carefully read and follow all the label information and directions exactly.

Some commercial growers use soil fumigation prior to planting to assist in the control of soil-borne weeds, insects, and diseases.

## Insect control

The insects most likely to be troublesome in strawberry plantings include tarnished plant bugs (lygus bugs), leafhoppers, leaf rollers, cutworms, mites, and white grubs. If you find insects, have them correctly identified and secure and carry out control recommendations.

Insecticides often used by commercial growers include diazinon, Kelthane, malathion, methoxychlor, and Thiodan. Read and follow all label information and directions exactly. Do not

apply insecticides during the blooming periods. To do so may kill the bees which pollinate the flowers.

White grubs are most effectively controlled by clean cultivation the year before planting or by soil fumigation prior to planting.

## Disease control

Diseases sometimes appear. The most common are leaf spot, leaf scorch, leaf blight, berry rot, and leather rot. If you find disease symptoms, have them diagnosed correctly and secure disease control information.

A good disease prevention and control program includes purchasing disease-free plants, using recommended cultural practices, and using proper fungicides. Fungicides often used in commercial strawberry plantings include captan, Dyrene, dodine, Benlate, and thiram. Read and follow all label information and directions exactly.

## Frost protection

Late spring frosts can severely damage strawberry flower buds, blossoms, and fruit. Sprinkler irrigation can help prevent this frost damage.

If frost is expected, begin sprinkling just before the temperature at the level of the leaves drops to 32° F. To prevent

frost damage, keep the plants continuously wet when the temperature is below freezing. Ice will form, but continue to sprinkle until the ice has melted from the leaves and the temperature has risen above 32° F.

Applying water at the rate of .1 to .25 inch per hour, depending on how low the temperature is expected to drop, usually will prevent damage. Wind, temperature, and dew point are factors that determine how much water will be needed to protect the plants.

Strawberries are easy to grow if you plant adapted cultivars, if your soil and water are not highly alkaline or saline, and if you follow good cultural practices. Strawberries can be a good commercial crop, and few other garden plants will bring as much pleasure to the home grower.

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